



Pacific Institute *for the*  
Mathematical Sciences

PIMS MONTHLY CONNECTION | April 2022



## Hello from PIMS

Events are picking up at PIMS and we will be hosting a hybrid of online and in-person activities. One of our upcoming hybrid events, [XVII Geometry and Physics Workshop](#), takes place in Vancouver (UBC) from May 16–20. Registration is now open.

PIMS is accepting applications for the Math Summer School for Elementary School Teachers. This popular program helps teachers develop strategies to engage their students in exciting mathematics and are provided with ideas, exercises, and examples to bring to their own classrooms. [See program requirements and apply.](#)

### Upcoming Deadlines:

April 2 - Registration Deadline: [Western Canada Math Biology Spring Workshop 2022](#)

April 10 - Registration Deadline: [Elementary Math Contest \(ELMACON\)](#)

April 15 - [Call for Network-wide Graduate Courses 2022-2023](#)

April 20 - [Call for Nominations for the PIMS Network Wide Colloquium Series](#)

Extended to June 30- [PRIMA Junior Research Showcase: Poster and Short talk](#)

See below for more details on this month's news, featured events, and publications.

Sincerely,  
The PIMS Team

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## NEWS & ANNOUNCEMENTS



Pacific Institute *for the*  
Mathematical Sciences

Announcing new support fund for  
Mathematical Scientists in Crisis

PIMS has created a dedicated fund for mathematical scientists in distress to visit PIMS

institutions. The [PIMS Mathematical Scientist Support Fund Program](#) has been launched to assist mathematical scientists around the world who are affected by conflict. The conflict in Ukraine has highlighted the discrepancies in the support offered to people in need, and while this fund was initiated by the Ukraine crisis, we recognize there are other regions in the world where individuals also need help.

[See Details](#)

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## Nominations open for the PIMS Network-wide Colloquium Series: 2022-2023

PIMS is continuing to sponsor a network-wide colloquium to take place in the Academic Year 2022-2023. High-quality colloquia by distinguished speakers will be given on a monthly basis (likely delivered virtually) for an audience spread across the 10 PIMS member universities.

Nominations will be considered by the PIMS Colloquium Committee by **April 20, 2022**.

[See Details](#)

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## Call for PIMS Network-wide Graduate Courses: 2022-2023

We invite proposals for graduate courses in the mathematical sciences to take place in either term of the 2022-2023 academic year. Instructors participating in this program will benefit by reaching a larger potential audience, and from interactions with fellow instructors and PIMS staff on how to best develop network-wide offerings. PIMS aims to support advanced and/or novel courses not routinely taught across the network. These courses will be designated as PIMS Network-wide graduate courses and will be advertised and promoted throughout the PIMS network. Some funding may be available for course related expenses. For a summary of the current and past courses see the [PIMS courses website](#). If you are interested in participating as an instructor, please complete the [instructor application form](#), by **April 15, 2022**.

[Read More](#)

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## The Evolving Quest for a Grand Unified Theory of Mathematics

University of Saskatchewan's PIMS CRG Leader Steven Rayan and PIMS Postdoctoral Fellow Kazuki Ikeda have been featured in an article by Scientific American. The article, which highlights the Langlands program, includes their thoughts on this exciting part of mathematics and how it intersects with their recent works connecting algebraic geometry and algebraic topology to condensed matter physics.

[Read More](#)

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## PIMS Faculty to Present at the 2022 CBMS Conference in Florida

Pauline van den Driessche (University of Victoria), Stephen Kirkland (University of Manitoba), and Mark Lewis (University of Alberta) will collectively provide ten main lectures at the [2022 Conference Board of the Mathematical Sciences](#) event in Florida. The CBMS conference will bring together both groups of researchers who have been working on biologically-driven algebraic problems and/or algebraically-forced biological applications, provide a unique platform to communicate the recent advances in their fields, strengthen the existing and initiate new collaborations across the two branches, and, most importantly, showcase the interface of mathematical biology and linear algebra for early-career researchers and graduate students.

[Read More](#)

## Pacific Rim Mathematical Association (PRIMA) Congress 2022

Dec 4–9, 2022. Vancouver.

PRIMA is an association of mathematical sciences institutes, departments, and societies from around the Pacific Rim, established in 2005 with the aim of promoting and facilitating the development of the mathematical sciences throughout the Pacific Rim region.

- **Applications from Junior researchers are now being accepted.** Find out more [here](#).
- To receive updates, including details on registration, please connect with the PRIMA Team [here](#).
- Follow PRIMA online [@PRIMAmath](#) #PRIMA2022.



Read More

## FEATURE EVENTS



### Elementary Math Contest (ELMACON) 2022

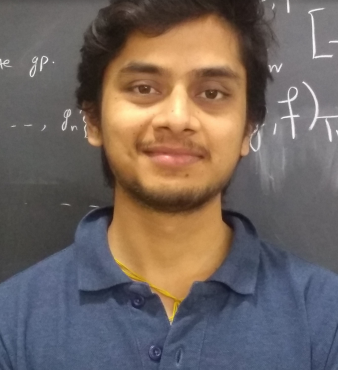
April 30. UBC.

Registration for ELMACON opens this March! After a 2-year hiatus due to the pandemic, the highly anticipated ELMACON competition, open to students from grades 5 - 7, returns to UBC on April 30th, 2022. The in-person event will be held in accordance with protocols and guidelines issued by the Province of British Columbia and The University of British Columbia.

We have been running preparation sessions to keep your math skills sharp and ready for the competition. **We are looking for volunteers for the event.** [Please contact us if you can help out.](#)

See Details

## PIMS PDF SEMINAR SERIES



April 8

**Positivity preservers forbidden to operate on diagonal blocks**

Prateek Kumar Vishwakarma is a PIMS postdoctoral fellow at the University of Regina, working under the mentorship of Professor Shaun Fallat, in the area of Matrix Analysis and Positivity. Prateek defended his Ph.D. thesis in December 2021 under the supervision of Professor Apoorva Khare at the Indian Institute of Science (IISc) Bangalore, India.

[See Details](#)

Amy Wiebe, Simon Fraser University

April 20

**Non-realizability of polytopes via linear programming**

Amy Wiebe received her PhD under the supervision of Rekha Thomas from the University of Washington in 2019. She is currently an NSERC/PIMS postdoctoral fellow at Simon Fraser University working with Tamon Stephen.

[See Details](#)

Meredith Sargent, University of Regina

April 27

**Shift operators and their adjoints in several contexts**

Meredith is a PIMS postdoctoral fellow at the University of Manitoba working with Robert T. W. Martin on problems about analytic functions of non commuting variables. She also organizes the Manitoba eXperimental Mathematics Laboratory, modeled on the program at the University of Washington for undergraduate research and is supervising students this semester.

[See Details](#)

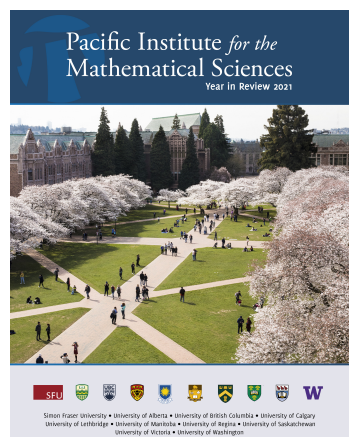
## View our calendars for more meetings and events

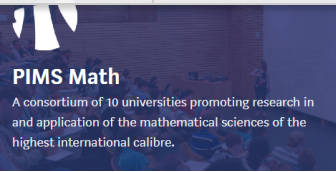
[Scientific Events](#)[Education Events](#)

## MEDIA

**PIMS 2021 Year in Review is out!**

Our Year in Review publication is now available for download. The publication looks at our scientific successes in 2021, partnerships with Indigenous communities, education highlights, and new initiatives to create an equitable, diverse and inclusive community in the mathematical sciences. [Download it here.](#)





PIMS is happy to share our stories and short interviews with members of the PIMS Community. We are currently featuring our 2021 PDF Cohort as they speak at the PDF Seminar Series. Do you have an interesting profile from the PIMS Community that we should highlight? [Let us know!](#)

## PIMS COMMUNITY RECENT PUBLICATIONS

1. **A. Akbary and Z.S. Aygin**, [Sums of triangular numbers and sums of squares](#), 26 pages, 2021.
2. **Halyun Jeong**. [Are we there yet? Manifold identification of gradient-related proximal methods](#), Proceedings of the 22nd International Conference on Artificial Intelligence and Statistics (AISTATS), joint work with Yifan Sun, Julie Nutini, and Mark Schmidt.

## ABOUT PIMS

**The Pacific Institute for the Mathematical Sciences (PIMS)** was created in 1996 to promote discovery, understanding, and awareness in the mathematical sciences. PIMS has expanded from the mathematics community of Alberta and British Columbia to include Washington State, Saskatchewan, and Manitoba. Our mandate is to promote research in and applications of the mathematical sciences, to facilitate the training of highly qualified personnel, to create an equitable, diverse and inclusive community, to enrich public awareness of and education in the mathematical sciences, and to create mathematical partnerships with similar organizations in other countries in the Pacific Rim. PIMS funds Collaborative Research Groups, Post-Doctoral Fellowships, and individual events on a competitive basis.

### We Want to Hear from You

Share your feedback on this month's newsletter and tell us what stories and news you would like to hear more of.

[Feedback](#)

### Your Support Makes a Difference

PIMS education and outreach programs touch countless educators, students, and Indigenous communities. Some of our activities include summer schools, mathematics contests and meetings for educators [Learn more](#)

[Donate to PIMS](#)

### Follow PIMS and be a part of our community



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We acknowledge with gratitude that PIMS central office is located on the unceded, traditional, and occupied territory of the Coast Salish peoples. This includes the territories of the  $xw\text{m}\theta\text{k}w\acute{o}y\acute{e}m$  (Musqueam),  $Skwxw\acute{u}7\text{mesh}$  (Squamish), and  $S\acute{e}l\acute{i}lw\acute{e}t\acute{a}?$ /Selilwitulh (Tseil-Waututh) Nations.  
[www.native-land.ca](http://www.native-land.ca)